



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,070	04/15/2004	Dae Hyun Cho	14245-004001 / FP2004-000	7154
26161	7590	12/09/2005	EXAMINER LORENCE, RICHARD M	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			ART UNIT 3681	
DATE MAILED: 12/09/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/825,070	Applicant(s) CHO ET AL.	
	Examiner Richard M. Lorence	Art Unit 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the first Office action on the merits of Application No. 10/825,070 filed on April 15, 2004.

Election/Restrictions

Applicant's election without traverse of the invention of Group I, claims 1-12 in the reply filed on September 28, 2005 is acknowledged.

The preliminary amendment filed along with the response to the restriction requirement has been entered. Claims 1 and 8 have been amended and claims 5 and 13-27 have been cancelled. Claims 1-4 and 6-12 are currently pending.

Drawings

The drawings are objected to because of the following informalities.

In Figure 3 the lead line associated with the reference numeral "30" is misdirected. In Figure 4, S110 "prducing" should be - - producing - -. In Figure 4, S110 "densitication" should be - - densification - -.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

Art Unit: 3681

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because in line 17 "slippery does not occur" is grammatically awkward. It is suggested that "slippery" be changed to - - slippage - -. Correction is required.

In the title after "Transmission" - - of - - should be inserted, and in view of the cancellation of claims 13-27 "and Method of Manufacturing..." should be deleted.

The disclosure is objected to because of the following informalities: In line 6 on page 1 after "transmission" - - of - - should be inserted. In line 7 on page 1 and in line 14 on page 2 after "manufacturing" - - a - - should be inserted. In line 19 on page 1 and elsewhere the terminology "slippery movement" should be changed to - - slippage - -. In line 18 on page 2 "positioning" should read - - positioned - -. In line 24 on page 6 "vertical" should read - - axial - -. Appropriate correction is required.

Claim Objections

Claim 1 is objected to because of the following informalities: In line 1 "transmission power composed of" should read - - transmission of power comprising - -; and in line 4 "through" should read - -with - -. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 and 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the friction pad" in line 5, "the press plate" in 6, and "the portion facing each other" in lines 7-8. There is insufficient antecedent basis for these limitations in the claim.

Claims 6 and 7 depend from claim 5 which has been cancelled.

Claim 12 recites the limitation "the press pad" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3681

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 11 and 12 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinrich '880 in view of Miyoshi et al. '854 and Diemer et al. '386.

The '880 patent to Heinrich discloses a clutch including a flywheel 12, a cover 13, a pressure plate 27 and a clutch disk assembly. The clutch disk assembly includes a clutch facing 23 or 24 with a main body with a center hole, and a contacting portion, i.e. the axially facing surface thereof, a spline hub 17, and combining means 18, 20, 21 for combining the facing with the hub. Heinrich does not disclose the claimed carbon-carbon composition of the facing or the friction pads on the flywheel and pressure plate.

Miyoshi et al. '854 discloses a friction element for a clutch or brake including carbon fiber in the range of 20-40% by weight and pitch (filler) in the range of 20-50% by weight (column 3, lines 55-60). Miyoshi et al. teaches that friction materials made of such a composition exhibit high friction coefficients and are superior in heat resistance (column 1, lines 60-63). It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the contacting portion of Heinrich's clutch disk assembly from a carbon composition of the type taught by Miyoshi et al. in order to realize the desirable benefits suggested therein.

Diemer et al. '386 discloses a friction clutch wherein friction pads 34, 36 are provided on the flywheel and pressure plate. Diemer et al. suggests that such an arrangement decreases the inertia of the clutch disk and increases the inertia of the

Art Unit: 3681

input side of the clutch (paragraph [0007]) . It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the clutch disk of Heinrich as modified by Miyoshi et al. with friction pads on the flywheel and pressure plate in order to realize the desirable advantages taught by Diemer et al.

Claims 8 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinrich '880, Miyoshi et al. '854 and Diemer et al. '386 as applied to claims 1-4 above, and further in view of Hubbard et al. '592. Neither Heinrich, Miyoshi et al. or Diemer et al. disclose the addition of silicon and silicon carbide in the composition. Hubbard et al. discloses a friction material for clutches or brakes including carbon fibers which additionally contains silicon and silicon carbide each in the range of 20-50% by weight (column 3, lines 46-53). Hubbard et al. teaches that by adding these components to friction materials including carbon fibers provides the composite with good wear, oxidation resistance and thermal properties (column 3, lines 60-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include silicon and silicon carbide in the contacting portion of Heinrich's clutch disk assembly as modified by Miyoshi et al. and Diemer et al. in order to realize the desirable benefits suggested by Hubbard et al.

Claims 6, 7, 9 and 10 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinrich '880, Miyoshi et al. '854, Hubbard et al. '592 and Diemer et al. '386 as applied to claims 1 and 8 above, and further in view of Kani '758. The '758 patent to Kani provides evidence that it was known at the time the invention was made to manufacture clutch facings from single woven fibers (see, e.g. column 1,

Art Unit: 3681

lines 13-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the known techniques in the manufacture of the contacting portion of Heinrich's clutch disk assembly as modified by Miyoshi et al., Hubbard et al. and Diemer et al.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on April 15, 2004 has been considered by the examiner.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Marin '353, Lacombe '508 and Krenkel et al. '935 show friction engaging member including carbon fibers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard M. Lorence whose telephone number is (571) 272-7094. The examiner can normally be reached on Mondays through Fridays from 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Richard M. Lorence
Primary Examiner
Art Unit 3681

Lorence/rml